CLAIMS

What is claimed is:

1. A method of transmitting data through a communication link having a bandwidth using a plurality of communication connections, the method comprising the steps of:

establishing a worker object for each one of the communication connections;

distributing the data amongst the worker objects;

forming messages using the distributed data within each worker object; and

delivering the messages formed within each worker object to an underlying layer of the plurality of communication connections so that each communication connection uses no more than a predetermined portion of the bandwidth.

2. The method of claim 1, further comprising the step of allocating a predetermined portion of the bandwidth to each of the plurality of communication connections.

3. The method of claim 2, wherein the step of allocating the predetermined portion of the bandwidth to each of the plurality of communication connections includes the step of allocating different predetermined portions of the bandwidth to two of the plurality of communication connections.

4. The method of claim 2, wherein the step of allocating the predetermined portion of the bandwidth to each of the plurality of communication connections includes the step of setting a time between calls parameter for each of the plurality of communication connections.

5. The method of claim 2, wherein the step of allocating the predetermined portion of the bandwidth to each of the plurality of communication connections includes the step of setting a message size parameter for each of the plurality of communication connections.

6. The method of claim 2, wherein the step of allocating the predetermined portion of the bandwidth to each of the plurality of communication connections includes the step of setting a sending buffer size for each of the plurality of communication connections.

7. The method of claim 2, wherein the step of allocating the predetermined portion of the bandwidth to each of the plurality of communication connections includes the step of setting a message size parameter and a time between calls parameter for each of the plurality of communication connections.

8. The method of claim 1, wherein the step of establishing the worker object for each one of the plurality of communication connections includes the step of using the worker object to instantiate one of the plurality of communication connections.

9. The method of claim 1, further comprising the step of partitioning the data to form a plurality of partitioned data streams prior to distributing the data amongst the worker objects.

10. The method of claim 9, wherein the step of partitioning the data to form the plurality of partitioned data streams prior to distributing the data amongst the worker objects includes the step of partitioning the data based on a type of data.

11. The method of claim 9, wherein the step of partitioning the data to form the plurality of partitioned data streams includes the step of establishing a one-to-one correspondence between the plurality of partitioned data streams and the worker objects.

12. The method of claim 1, wherein the step of distributing the data amongst the worker objects includes the step of transferring a subset of the data to one of the worker objects in response to a request for data from the one worker object.

13. The method of claim 1, wherein the step of distributing the data amongst the worker objects includes the step of using a data transmission object.

14. The method of claim 1, wherein the step of forming the messages using the distributed data within each worker object includes the step of forming the messages within each worker object using a parameter of that worker object that controls the size of the messages.

15. The method of claim 1, wherein the step of delivering the messages formed within one of the worker objects includes the step of delivering the messages formed within the one worker object to the underlying layer based on a parameter of the one worker object that affects the rate at which the messages are delivered to the underlying layer.

16. The method of claim 15, wherein the step of delivering the messages formed within the one worker object to the underlying layer based on the parameter of the one worker object that affects the rate at which the messages are delivered to the underlying layer includes the step of using a time between calls parameter.

17. A system for transmitting data through a communication link having a bandwidth using a plurality of communication connections, the system comprising:

a communication object that distributes the data amongst the plurality of communication connections; and

a plurality of worker objects, wherein each worker object is associated with one of the communication connections and forms messages using the data distributed to the communication connection associated with that worker object, and wherein each worker object delivers the messages formed within that worker object to an underlying layer of the plurality of communication connections so that each communication connection uses no more than a predetermined portion of the bandwidth allocated to that communication connection.

18. The system of claim 17, wherein each of the plurality of worker objects is adapted to instantiate a communication connection.

19. The system of claim 17, wherein the communication object partitions the data to form a plurality of partitioned data streams prior to distributing the data amongst the plurality of communication connections.

20. The system of claim 19, wherein the communication process partitions the data based on a type of data.

21. The system of claim 19, wherein the communication object establishes a one-to-one correspondence between the plurality of partitioned data streams and the plurality of worker objects.

22. The system of claim 17, wherein the communication object transfers a portion of the data to one of the plurality of worker objects in response to a request for data from the one worker object.

23. The system of claim 17, wherein the communication object is a data transmission object.

24. The system of claim 17, wherein each of the plurality of worker objects includes a set of uniquely configurable communication parameters.

25. The system of claim 24, wherein the set of uniquely configurable communication parameters includes a parameter that controls the size of the messages.

26. The system of claim 24, wherein the set of uniquely configurable communication parameters includes a parameter that controls the rate at which the messages are delivered to the underlying layer.

27. The system of claim 26, wherein the parameter that controls the rate at which the messages are delivered to the underlying layer is a time between calls parameter.

28. The system of claim 24, wherein the set of uniquely configurable communication parameters includes a parameter that controls a buffer size.

29. A system for transmitting data through a communication link using a plurality of communication connections, the system comprising:

a communication process that partitions the data to form a plurality of partitioned data streams; and

a plurality of worker processes that each have a set of uniquely configurable communication parameters, wherein each of the plurality of worker processes receives the partitioned data from a corresponding one of the plurality of partitioned data streams and delivers messages containing the partitioned data to an underlying layer of the plurality of communication connections based on the set of uniquely configurable communication parameters for that worker process.

30. The system of claim 29, wherein the communication process is based on a data transmission object.

31. The system of claim 29, wherein the communication process partitions the data based on a type of data.

32. The system of claim 29, wherein each of the plurality of worker processes is based on a worker object.

33. The system of claim 29, wherein there is a one-to-one correspondence between the plurality of worker processes, the plurality of partitioned data streams and the plurality of communication connections.

34. The system of claim 29, wherein the set of uniquely configurable communication parameters includes a parameter that controls the rate at which the messages are delivered to the underlying layer.

35. The system of claim 34, wherein the parameter that controls the rate at which the messages are delivered to the underlying layer is a time between calls parameter.

36. The system of claim 29, wherein the set of uniquely configurable communication parameters includes a message size parameter.

37. The system of claim 29, wherein the set of uniquely configurable communication parameters includes a sending buffer size parameter.

38. A system for transmitting data through a communication link, comprising:

a communication station having a processor and a memory communicatively coupled to the processor, wherein the processor is programmed to provide a plurality of worker objects that each instantiates a separate communication connection through the communication link and wherein each of the plurality of worker objects includes a set of communication connection parameters that are uniquely configurable to determine the manner in which the data is sent to an underlying layer of the communication link.

39. The system of claim 38, wherein the communication station is a sending communication gateway.

40. The system of claim 38, wherein the communication station is a receiving communication gateway.

41. The system of claim 38, wherein each of the separate communication connections uses a connection-oriented communication protocol.

42. The system of claim 38, wherein the set of communication connection parameters includes a time between calls parameter.

43. The system of claim 38, wherein the set of communication connection parameters includes a message size parameter.

44. The system of claim 38, wherein the set of communication connection parameters includes a message size parameter and a time between calls parameter.

45. The system of claim 38, wherein the set of communication connection parameters includes a sending buffer size parameter.

46. The system of claim 38, wherein the processor is further programmed to cause messages containing a particular type of data to be sent through a particular one of the separate communication connections.

47. The system of claim 38, wherein the processor is further programmed to partition the data into a plurality of partitioned data streams based on type of data and to transfer partitioned data from one of the plurality of partitioned data streams to one of the plurality of worker objects.

48. The system of claim 47, wherein there is a one-to-one correspondence between the plurality of partitioned data streams, the plurality of worker objects and the separate communication connections.

49. A method of transmitting data through a communication link, comprising the steps of:

establishing a plurality of worker processes that each receives data and that each sends messages containing the data to an underlying layer of the communication link;

uniquely configuring a set of communication connection parameters uniquely associated with each of the worker processes;

instantiating a separate communication connection for each of the worker processes; and

delivering the messages from one of the worker processes to the underlying layer for transmission through the communication link based on the set of communication connection parameters uniquely associated with the one worker process.

50. The method of claim 49, wherein the step of establishing the plurality of worker processes that each receives the data and that each sends the messages to the underlying layer of the communication link includes the step of assigning a particular type of data to each of the plurality of worker processes.

51. The method of claim 49, wherein the step of uniquely configuring the set of communication connection parameters uniquely associated with each of the worker processes includes the step of configuring a time between calls parameter for each of the worker processes.

52. The method of claim 49, wherein the step of uniquely configuring the set of communication connection parameters uniquely associated with each of the worker processes includes the step of configuring a message size parameter for each of the worker processes.

53. The method of claim 49, wherein the step of uniquely configuring the set of communication connection parameters uniquely associated with each of the worker processes includes the steps of configuring a message size parameter for each of the worker processes and configuring a time between calls parameter for each of the worker processes.

54. The method of claim 49, wherein the step of uniquely configuring the set of communication connection parameters uniquely associated with each of the worker processes includes the step of configuring a sending buffer size parameter for each of the worker processes.

55. The method of claim 49, wherein the step of uniquely configuring the sets of communication connection parameters uniquely associated with each of the worker processes includes the step of configuring the sets of communication connection parameters to provide a reserved bandwidth for retransmissions.

56. The method of claim 49, wherein the step of delivering the messages from the one of the worker processes to the underlying layer for transmission through the communication link based on the set of communication connection parameters uniquely associated with the one worker process includes the step of using a timer function within the one worker process to control the rate at which the one worker process delivers the messages to the underlying layer.